The National Private Pilot's Licence for Microlights

The National Private Pilot's Licence (NPPL) is a UK specific pilot's licence developed in 2002. It is not an internationally recognised licence and does not automatically entitle the holder to fly aircraft in other countries.

The NPPL may include in it aircraft Class Ratings that allow the holder to fly specific classes of aircraft, such as microlights.

To obtain a NPPL with a Microlight Class Rating you must complete flight training with a UK Civil Aviation Authority authorised flying instructor entitled to instruct on microlights. This syllabus contains the details of the training required.

Flight Training Requirements

The Microlight Class Rating can be issued with either of two options. The options are **Without** Operational Limitations or **With** Operational Limitations.

The minimum flight training required for the grant of a NPPL with a Microlight Class Rating Without Operational Limitations is:

Minimum total flight time under instruction	25 hours
Minimum flight time solo	10 hours
Minimum total navigation flight time	5 hours
Minimum solo navigation flight time	3 hours

The minimum flight training required for the grant of a NPPL with a Microlight Class Rating With Operational Limitations is:

Minimum total flight time under instruction	15 hours
Minimum flight time solo	7 hours

The Operational Limitations at initial issue are:

1. The licence is valid for flight in the UK only
2. The pilot may not carry any passenger
3. The pilot may not fly with a cloud base less than 1000 feet above ground level or with less than 10 kilometres visibility
4. The pilot may not fly further than 8 nautical miles from take off.

As part of your flight training you must take and pass a test with an authorised flight examiner to demonstrate your ability to fly a microlight through all the manoeuvres that you will have learned during training. The test is called a General Skills Test (GST). The flight time of the GST can count towards the minimum total flight time required to obtain the NPPL but not towards the solo minimum time.

To ensure that when your licence is issued your skill level and knowledge is current you must have completed the minimum solo flight time, all the navigation flight training and the GST within the nine month period immediately prior to applying for your licence.

Ground Training Requirements

The Microlight syllabus lists the subject matter that an applicant for a Microlight Class Rating must understand. There is no minimum requirement for training by an

instructor to achieve this knowledge but the applicant must have demonstrated a knowledge of the subject matter by passing examinations.

There are written examinations in five subjects. Meteorology, Navigation, Aviation Law, Human Performance and Limitations and Aircraft Technical subjects. The examinations must have been passed within the twenty four months immediately prior to applying for your licence.

There is one further examination to complete your demonstration of knowledge of the aircraft type that you have used to complete your GST. This examination is an oral examination and must be conducted by a flight examiner entitled to examine in microlight aircraft. It is usual, but not required, that the examination is conducted at the same time as the GST by the same examiner. The ground oral examination must have been passed within the nine months immediately prior to applying for your licence.

Licence application

Application for the grant of a NPPL with a Microlight Class rating must be made in writing on the NPPL Microlight Licence application form through the BMAA Licence Administration Centre at the BMAA office address.

Removing the Operational Limitations from a NPPL Microlight Class Rating.

To remove Limitation 2 the holder must have completed at least 25 hours of total flying in microlights and at least 10 hours solo flying in microlights. The holder's experience is certified in their log book by a flight examiner and the Limitation ceases to apply from that time.

To remove Limitations 3 and 4 the holder must have completed at least 25 hours of total flying in microlights, at least 10 hours solo flying in microlights. The holder must have completed the navigation training requirements specified in flight Exercise 18 within the nine month period immediately prior to applying to have the limitations removed. Application to have Limitations 3 and 4 removed must be made in writing on the NPPL Microlight Licence application form through the BMAA Licence Administration Centre at the BMAA office address.

Medical requirements

A pilot may only fly microlights as Pilot In Command in the UK if they hold valid medical certification.

The NPPL medical certification can be by a Self Declaration signed by the pilot and then countersigned by the pilot's General Practitioner (GP). The pilot must be registered with the GP who countersigns the Declaration and the GP must be a UK registered GP with a current licence to practice. Where a pilot is registered to a Medical Practice it is acceptable that any GP member of the Practice can countersign the Declaration. It is a requirement that the GP who countersigns the Declaration has access to the pilot's medical notes.

Details of the medical requirements and an application form with notes for the pilot and notes for the GP are available from the BMAA web site.

Other accepted medical certification may be available, but applicants should check with their instructor prior to solo flight.

NATIONAL PRIVATE PILOTS LICENCE MICROLIGHT TRAINING SYLLABUS

Introduction

After many years experience and consultation with experienced microlight instructors and examiners, this syllabus has been formulated by the Microlight Panel of Examiners on behalf of the British Microlight Aircraft Association (BMAA), and approved by the Civil Aviation Authority (CAA).

All microlight instruction must be conducted in accordance to this, and no other syllabus - unless any alternative syllabus has been submitted to and approved by the CAA.

The syllabus is in two main parts - 1 Flying, 2 Ground - subjects.

The flying syllabus is broken down into **phases** and **exercises**. Individual exercises are further sub-divided into different **elements**, each of which must be fully understood by the student.

Within each phase, each exercise has a specific stated aim. To ensure that these aims are achieved each phase has a specific stated standard of skill which must be achieved.

Elements pertinent to both weightshift and 3-axis types of aircraft are included in the syllabus. Where an aspect is not relevant to a type it should be ignored. For example, in exercise 6 - "Use of yaw control to maintain balanced flight" is not pertinent to a weightshift aircraft, as no primary control for yaw is provided in current designs.

Use of the syllabus

Every student should be in possession of a copy of the syllabus. As an aid to ensuring that no element is omitted each element can be ticked off as it is completed.

An exercise or group of exercises of the flying syllabus is taken as a session, and the pattern of each flying session should be run as follows:-

(1) Pre-flight briefing (2) Flight training session (3) Post flight de-briefing

The flight exercises as listed reflect a progression through the basic handling skills to more complex manoeuvring and procedural flying. It is not however mandatory for a student to complete the exercises in strict number order if an instructor feels that the student would benefit from an earlier introduction to a later exercise, for example First Solo immediately after satisfactory completion of Phase 3, Exercise 13.

All flight exercises should be completed to a satisfactory standard prior to course completion.

There is no laid down format for the ground subjects training, but it should be closely aligned to the knowledge required for the flight training exercises in order to produce an integrated course of training.

Every school is required to keep an up to date progress report for each student pilot on a student record sheet. Student records must be kept for at least two years after the last entry and should be available to the student to view.

SUMMARY OF THE SYLLABUS FOR THE MICROLIGHT NPPL COURSE
FLIGHT TRAINING

Phase	Ex No.	Exercise Description
1	1	Aircraft familiarisation
	2	Preparation for flight and action after
	3	Air Experience
	4	Effects of Controls
	5	Taxiing
	6	Straight & Level flight
	7	Climbing
	8	Descending
	9a	Medium Level-turns (up to 30° bank angle)
	9b	Climbing and descending turns
2	10a	Slow flight
	10b	Stalling
	11	Spin Awareness
3	12	Takeoff and climb to down wind
	13	The circuit, approach, and landing/overshoot
4	14	Advanced turning (up to 60° bank angle)
	15	Unusual and dangerous attitudes/conditions
5	16a	Forced landings, with/without power
	16b	Operation at minimum level
6	17a	First solo
	17b	Solo circuit, local area, and general flying consolidation to GST for microlight NPPL
	17c	Dual revision for GST
7	18	Pilot navigation

Ex 1. Aircraft Familiarisation

Aim: To become familiar with the component parts, controls, and systems of the aircraft.

Explanation of the aircraft:

- ☐ Component parts of the aircraft
- ☐ Main flight controls
- ☐ Engine controls

Explanation of the cockpit layout and systems:

- ☐ Operation of flying controls
- ☐ Operation of engine controls
- ☐ Flight instruments/Engine instruments
- ☐ Electrical system
- ☐ Fuel system
- ☐ Operation of safety equipment

Check lists and drills:

- ☐ Use of check lists and drills suitable for aircraft type
- ☐ Instinctive knowledge of position of controls

Emergency drills:

- ☐ Action in the event of fire; in the air and on the ground
- ☐ Failure of equipment or systems
- ☐ Escape drills

Ex 2. Preparation for flight and Action after flight

Aim: To understand how to prepare the aircraft and pilot for flight, and to leave the aircraft after flight.

Airfield Rules/Procedure/Safety:

- ☐ Standing orders
- ☐ Booking out/in
- ☐ Windsock
- ☐ Signals square
- ☐ Fuel storage
- ☐ Fire extinguisher/s
- ☐ Smoking

Student Comfort:

- ☐ Seating position
- ☐ Suitable clothing for conditions expected

Flight Authorisation and aircraft acceptance:

- ☐ Pre-flight planning
- ☐ Aircraft documentation
- ☐ Air traffic control information
- ☐ Personal equipment

Pre-flight checks:

- ☐ Use of manufacturer's check list or mnemonic
- ☐ Explanation of extra items to check if aircraft just rigged

External checks:

- ☐ Position of aircraft suitable for starting
- ☐ Fire extinguisher is available
- ☐ Taxi path is unobstructed

Starting and warming up engine:

- ☐ Pre-start checks
- ☐ Stages and controls involved
- ☐ Signals that may be used

Pre-Takeoff checks:

- ☐ Use of manufacturer's checklist or suitable mnemonic
- ☐ Importance of this check (vital actions)

Running down and switching off:

- ☐ Stages and controls involved

Leaving the aircraft:

- ☐ Suitably parked/picketed
- ☐ Controls locked or restrained
- ☐ Brief external check

Completion of post-flight documentation:

- ☐ Booking in
- ☐ Reporting of defects
- ☐ Entries in personal flight log
- ☐ Entries in Airframe/Engine log

Ex 3. Air Experience

Aim: To introduce and become accustomed to the aircraft, the sensation of flying and to sample the aspect of the ground from the air.

Detailed instruction is not normally undertaken on this flight. It can, however, be a valuable lesson. It is an opportunity for the instructor to become acquainted with the student and decide upon the most suitable approach for subsequent instruction.

During the flight all actions performed by the instructor should be accompanied by an explanation. Any sudden manoeuvring or expected turbulence should be discussed *before* it is encountered. The student should inform the instructor of any discomfort, in order to allow a rapid return to the airfield.

During the latter part of the flight, the student should have the opportunity to handle the controls to provide a foundation for the next exercise.

If the student has some previous flying experience, then this exercise can be combined with Ex 4 Effects of Controls.

Ex 4. Effects of Controls

Aim: To understand how each control affects the aircraft in flight.

Airmanship

- ☐ The importance of maintaining a good lookout

Methods of assessing aircraft attitude:

- ☐ The horizon
- ☐ Hands-off trim
- ☐ 'Feel' of wind on face

Primary effects of controls:

Further effects of controls:

Effects of airspeed, slipstream, and torque on control response:

Effects of trim:

- ☐ Hands-off trim
- ☐ In flight adjustable trim (where applicable)

Effects of Flap; (where applicable):

- ☐ Effect at different positions
- ☐ Change in pitch attitude with flap
- ☐ Remaining within flap operational limiting speed

Use of other controls for increasing Rate of Descent (where applicable):

- ☐ Airbrakes
- ☐ Spoilers
- ☐ Tip draggers

Use of other controls as applicable to type:

- ☐ Mixture control
- ☐ Carburettor heat
- ☐ Cabin heat and ventilation

Ex 5. Taxiing

Aim: To safety control the aircraft while manoeuvring on the ground, in different wind conditions, and on different surfaces.

Airmanship:

- ☐ Lookout
- ☐ Suitable taxi speed
- ☐ Serviceability checks of instruments (compass, ASI, etc)

Use of controls during taxiing:

- ☐ Headwind Tailwind Crosswind Tailwheel considerations, (where applicable)

Emergencies:

Ex 6. Straight & Level flight

Aim: To attain and maintain flight in a straight line, and at a constant altitude.

Airmanship:

- ☐ Lookout
- ☐ Regular checks - Fuel state/consumption rate/engine instruments/etc

Straight flight:

- ☐ Visual reference point
- ☐ Regaining and maintaining visual reference point
- ☐ Use of yaw control to maintain balanced flight

Level flight, (Normal cruise power):

- ☐ Power required dependant on load carried
- ☐ Attitude appreciation and control
- ☐ Use of in-flight trim control (if applicable)
- ☐ Hands-off trim

- ☐ Inherent stability
- ☐ Use of altimeter to check level

Level flight, (Varying power settings and IAS):

- ☐ Power provides height
- ☐ Angle of attack provides speed
- ☐ Power and angle of attack combine to give performance

Attitude control:

- ☐ Use of pitch control to maintain constant attitude to achieve constant I.A.S.

Difference between 3-axis aircraft and weightshift aircraft:

- ☐ Pitch inputs change attitude on both weight shift & 3-axis aircraft, but with a weight shift aircraft the nose attitude in relation to the horizon remains nearly constant with different airspeeds, in a 3-axis aircraft the nose attitude in relation to the horizon changes with different airspeeds

Ex 7. Climbing

Aim: To enter and maintain a steady full-power-climb, and then return to level flight at a predetermined altitude. Also to enter and maintain a steady cruise-climb.

Airmanship:

- ☐ Lookout
- ☐ Altimeter setting procedure
- ☐ Position of aircraft in relation to Airways etc
- ☐ Awareness of any blind spots
- ☐ Monitoring engine temperature

Entry to climb:

- ☐ Power first, then attitude adjustment (PAHT Power-Attitude-Hold-Trim)
- ☐ Combining power and attitude for performance
- ☐ Establishing and holding correct speed for climb

Levelling off:

- ☐ Attitude first, then power adjustment (AHPT Attitude-Hold-Power-Trim)
- ☐ Maintenance of selected altitude

Effect of flaps on climb, (if applicable):

- ☐ Effect on attitude and airspeed

Maximum Angle of climb:

- ☐ Speed to achieve performance required
- ☐ Practical uses

Maximum Rate of climb

- ☐ Speed to achieve performance required
- ☐ Practical uses

Cruise climb

- ☐ Practical uses

Ex 8. Descending

Aim: To enter and maintain a steady glide-descent, then at a predetermined altitude, to return to level flight or climb. Also to enter and maintain a steady cruise-descent.

Airmanship:

- ☐ Lookout
- ☐ Selection of clear airspace
- ☐ Altimeter setting procedure
- ☐ Regular application of power to ensure warm engine and clear plugs
- ☐ Awareness of blind spots

Glide descent:

- ☐ Control of airspeed
- ☐ Speed for maximum glide range
- ☐ Speed for minimum sink
- ☐ Rate of descent/Angle of descent
- ☐ Use of flaps (if applicable)
- ☐ Use of airbrakes (if applicable)
- ☐ Use of spoilers (if applicable)
- ☐ Use of tip draggers (if applicable)

Entry to the descent:

- ☐ Coordination of power and attitude control. AHPT/ PAHT (depending on type)

Levelling off

- ☐ Power and attitude together

Effect of flap (where applicable):

- ☐ Effect on attitude and airspeed
- ☐ Control of angle of descent with constant airspeed
- ☐ Descent-to-climb-on-full-flap procedure

Powered descent:

- ☐ Relationship between power and airspeed
- ☐ Control of rate of descent
- ☐ Control of angle of descent using visual reference point (as on final approach)

Cruise descent:

- ☐ Uses

Sideslipping:

- ☐ Method of losing height

Ex 9a. Medium level-turns up to 30° bank angles,

Aim: To enter and maintain a medium (up to approx 30° bank) turn whilst maintaining level flight, then to return to straight and level on a new heading.

Airmanship:

- ☐ Instinctive lookout before turns
- ☐ Allowance for wind and maintaining knowledge of position

Use of controls:

- ☐ Co-ordination and interaction during turns
- ☐ Use of pitch to control attitude for height
- ☐ Use of power to control airspeed

Use of power

- ☐ Slipstream and torque effect relative to direction of turn

Maintenance of attitude and balance:

- ☐ Co-ordination and balance through the turn
- ☐ Using structure of aircraft to provide datum during the turn
- ☐ Awareness of heading during the turn
- ☐ Use of visual reference points to ensure accurate rolling out of turns

Ex 9b. Climbing and descending turns.

Aim: To enter and maintain a climb or descent whilst turning, or to enter and maintain a turn from a straight climb or a descent.

Airmanship:

- ☐ Instinctive lookout before turns including above or below
- ☐ Allowance for wind and maintaining knowledge of position

Use of controls:

- ☐ Co-ordination and interaction during turns
- ☐ Accurate speed and power control to control rate of climb or descent
- ☐ Slipstream and torque effect relative to direction of turn

Maintenance of attitude and balance:

- ☐ Co-ordination and balance through the turn
- ☐ Using structure of aircraft to provide datum during the turn
- ☐ Awareness of heading during the turn
- ☐ Use of visual reference points to ensure accurate rolling out of turns
- ☐ Use of low bank angles during climbing turns, to maintain rate of climb

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Standard required at end of Phase 1.

A reasonable level of competence in all general-flying skills

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PHASE 2

Ex 10a. Slow flight. (Vs + 2mph and Vs + 5mph)

Aim: To become familiar with the 'feel' of the aircraft in slow flight just above the stall-speed, and to recognise the symptoms of the incipient stall, and to restore aircraft to safe flight before the stall occurs

Airmanship

- ☐ Lookout
- ☐ Checks to ensure safe operation through exercise ie: height/location etc

Characteristics of slow speed flight:

- ☐ Control response
- ☐ Effect of slipstream and torque (where applicable)
- ☐ Angle of attack (high nose attitude for 3-Axis aircraft)
- ☐ Angle of attack (control bar well forward of hands-off position for weightshift aircraft)
- ☐ Wing dropping tendencies and difficulty in maintaining wings level
- ☐ Extra emphasis on need to keep 3-axis aircraft in balance with use of rudder
- ☐ Extra emphasis on need for careful use of roll control
- ☐ Need for extra care when turning i.e. shallow angles of bank

Ex 10b. Stalling

Aim: To recognise and enter a fully-developed stall from various modes of flight both straight and turning, and then to recover with minimum height-loss to a safe flight mode. Also to recover to a safe flight mode at the incipient stall stage.

Airmanship:

- ☐ Special attention to lookout - clearing turn to check rear
- ☐ Checks to ensure safe operation through exercise i.e.: height/location etc

Principles and characteristics at the stall:

- ☐ Effectiveness of controls
- ☐ Inherent stability of aircraft at stall e.g. Washout
- ☐ Buffet and other indications e.g. Severe rearward bar pressure on weightshift aircraft
- ☐ Wing dropping tendencies and correct handling of controls i.e. dangers of using roll control to level wings at the point of stall.

Factors affecting the stalling speed:

- ☐ Flaps (if applicable)
- ☐ Power
- ☐ Weight
- ☐ Load factor i.e. centrifugal force in steep turns

Full Stall and recovery; (from straight flight - level, climbing and descending)

- ☐ Use of controls
- ☐ Use of power (Recovery with and without the use of power)

Full Stall and recovery; (from turning flight - 30° angle of bank - level, climbing and descending)

- ☐ Use of controls
- ☐ Use of power (recovery with and without the use of power)

Stall and recovery at the incipient stage:

- ☐ Recovery during various attitudes and configurations
- ☐ Recovery during changing configurations

Stalling at higher speed:

- ☐ Secondary stall
- ☐ 'g' stall

Ex 11. Spin awareness (if applicable)

Aim: To understand and recognise the onset of situations which may lead to an inadvertent spin, and to learn how to instinctively take the necessary control actions to effect a recovery back to normal flight condition before a spin occurs, i.e. to recover the incipient stage

Airmanship:

- ☐ Special attention to lookout - clearing turn to check rear
- ☐ Checks to ensure safe operation through exercise ie: height/location etc

Causes of spin:

Recognition of Incipient spin:

Recovery from the incipient spin:

- ☐ Use of controls
- ☐ Danger of using ailerons at the incipient stage
- ☐ Effect of power and flap (flap restriction as applicable to type)
- ☐ Effect of centre of gravity on spin
- ☐ Recovery at the incipient stage from various attitudes and configurations

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Standard required at end of phase 2

Prior to circuit training, ability to control aircraft safely in slow flight just above the stall (Vs + 2mph) and able to recover to normal flight at incipient stall stage. Prior to solo flight, a very high standard of competence at recovering safely from fully developed stall and demonstrable ability to prevent aircraft getting into dangerous attitudes from all stall/spin-and-recovery manoeuvres.

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PHASE 3

Ex 12. Takeoff and climb to downwind position

Aim: To safely take off and climb the aircraft to position on the downwind leg at circuit height. Also to land safely in the event of an engine failure after take off or at any time in the circuit, and to decide against and take appropriate action, if for some reason, continuation of the take off would be unsafe.

Airmanship

- ☐ Pre take-off checks
- ☐ Planning for power failure on every take off
- ☐ Planning takeoff with regard to wake turbulence from other aircraft
- ☐ Planning takeoff with regard to areas of low level rotor/turbulence
- ☐ Drills during and after take off i.e. constant planning for an aborted takeoff, or a forced landing due to power failure on take off or in the circuit, and monitoring engine temperature during the climb

Factors affecting the length of the takeoff roll and the initial climb:

- ☐ Use of power
- ☐ Correct lift-off speed
- ☐ Use of flight controls and techniques
- ☐ Wind: Nil-wind, Head-wind, Cross-wind
- ☐ Ground surface: Concrete, Grass (long/short/soft/hard/dry/wet)
- ☐ Ground gradient
- ☐ Weight - Altitude - Temperature - Humidity
- ☐ Maximum Angle of climb:
- ☐ Maximum Rate of climb:

Undulating (rough field)

- ☐ Premature lift-off and subsequent control

Short and soft field considerations:

Tailwheel considerations (if applicable):

Effect of flaps (if applicable):

- ☐ Decision to use
- ☐ Effects of use

Emergencies:

- ☐ Abandoned takeoff
- ☐ Engine failure after takeoff
- ☐ Engine failure in the circuit

Ex 13. The circuit, final approach and landing

Aim: To fly an accurate circuit and carry out a safe approach and landing.

Airmanship

- ☐ Importance of constant lookout during circuit, and prior to turning to leg
- ☐ Downwind checks
- ☐ Planning approach and landing with regard to wake turbulence from aircraft landing ahead

The downwind leg, base leg, final approach positioning and drills:

Factors affecting the final approach (and landing run):

- ☐ Nil-wind, Head-wind, Cross-wind
- ☐ Correct approach speed
- ☐ Use of power
- ☐ Weight
- ☐ Flaps/spoilers (if applicable)

Types of approach (and landing):

- ☐ Powered approach and landing
- ☐ Glide approach and landing
- ☐ Crosswind approach and landing
- ☐ Short field approach and landing
- ☐ Soft field approach and landing
- ☐ Flapless approach and landing (if applicable)
- ☐ Use of airbrakes and spoilers (if applicable)
- ☐

Missed approach and go-around:

- ☐ Correct positioning

Missed landing and go-around:

Effect of ground surface and gradient on the landing run:

Tailwheel considerations (if applicable):

Use of elevator:

☐ Safeguarding the nosewheel

Use of brakes (if applicable):

The Complete Take-off, Circuit and Landing:

☐ Circuit joining and leaving procedures

The Hold-off period, and Touchdown:

☐ Ability to control height with pitch control, and airspeed with power
☐ Ability to control direction
☐ Ability to control and correct ballooning
☐ Ability to cope with crosswind
☐ Ground manoeuvring after landing

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Standard required at end of phase 3

Ability to take off safely and maintain the climb out safely given a variety of different circumstances. Ability to cope with emergencies at any point in the take-off, circuit, or landing phases of flight. Ability to approach and land safely given a variety of different circumstances. Demonstration of a high degree of airmanship and knowledge of airfield and circuit procedures and disciplines.

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PHASE 4

Ex 14. Advanced turning (up to 60° bank angles)

Aim: To carry out a coordinated level turn at steep angles of bank and to recognise and recover from a spiral dive. Also entry and recovery from, and uses of a sideslipping turn (if applicable to type).

Airmanship:

☐ Importance of lookout
☐ Importance of maintaining orientation
☐ Cockpit checks

360° turns: (up to 45° bank angle)

☐ Level / Climbing / Descending
☐ Wake turbulence

Steep level-turns (up to 60° bank angle):

☐ Co-ordination
☐ Use of power
☐ Weightshift aircraft - 270° turns only, to avoid own wake turbulence and possible student disorientation due to being forced into an unusual or dangerous attitude

The spiral dive:

- ☐ If power applied - reduce
- ☐ Recovery by use of roll and then pitch

The sideslipping turn:

- ☐ Uses of

Ex 15. Recognition of unusual attitudes; Prevention of dangerous conditions.

Aim: To recognise and recover from unusual attitudes in order to prevent the aircraft entering dangerous conditions.

Note: This exercise must not be practised solo by the student

Airmanship:

- ☐ HASELL checks

Aircraft limits:

- ☐ (Refer to POH) Definition of Flight Envelope; Vne, Va, Vno, Vfe, Max bank, Max pitch, Max +ve and -ve "G"
- ☐ Dangers associated with exceeding aircrafts limits
- ☐ Weight shift aircraft - the Tumble
- ☐ Need for inspection following flight outside envelope.

Aircraft Stability Characteristics:

- ☐ Weightshift - need to maintain +ve G
- ☐ Pitch-positive tendencies
- ☐ Roll Inertia.

Possible causes of unusual attitudes**:**

- ☐ From inadvertent mishandling of controls at high speeds
- ☐ From inadvertent mishandling of controls in stall recovery in various configurations
- ☐ From inadvertent mishandling of controls in a steep turn
- ☐ From inadvertent mishandling controls following hitting own wake turbulence in a steep turn
- ☐ Severe meteorological turbulence.
- ☐ Loss of control following spatial disorientation.
- ☐ Deliberate manoeuvres outside the pilot's ability.

Recognition of Unusual Attitudes**:**

- ☐ Attitude in relation to horizon.
- ☐ Speed and Energy State.
- ☐ Instrument lag

Recovery Techniques from:

- ☐ Nose high, wings level
- ☐ Nose high, wings banked
- ☐ Nose low, wings level,
- ☐ Nose low, wings banked

Management of Controls during Simulation/Practice

- ☐ Need for smooth positive inputs, control of "G"
- ☐ Instructor to set up unusual attitude
- ☐ Handover/passing of control

Motion Sickness

- ☐ Exercise to be terminated at onset.

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Standard required at end of phase 4

Ability to control aircraft safely at steep angles of bank, with correctly coordinated roll, pitch, and power. Ability to avoid the spiral dive and understand wake turbulence. Ability to use sideslipping usefully and safely. An understanding of unusual attitudes and dangerous conditions. The ability to recognise the onset of unusual attitudes and take instinctive recovery action to prevent a dangerous condition developing.

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PHASE 5

Ex 16a. Forced landings – without and with power

Aim: To carry out a safe descent, approach, and landing, in the event of the engine failing during flight, and to carry out a safe unplanned precautionary landing in an unfamiliar field.

Airmanship:

- ☐ Use of correct drills
- ☐ Correct handling and highly accurate speed control

Forced landing procedure:

Choice of landing area:

- ☐ Provision for change of plan

Gliding distance considerations:

The descent plan:

- ☐ Key position
- ☐ Engine failure checks

The base leg:

The final approach:

- ☐ Methods of controlling glide angle
- ☐ S turns, beats, constant aspect, use of flaps/spoilers and airspeed

Precautionary landing with power:

- ☐ Inspection procedures

Actions after landing:

- ☐ Aircraft security

Ex 16b. Operation at minimum level.

Aim: To safely operate the aircraft at heights lower than those normally used.

Airmanship:

- ☐ Assessment of weather conditions/turbulence
- ☐ Assessment of height above terrain
- ☐ Compliance with low flying rules
- ☐ High level of awareness
- ☐ Low level of military aircraft

Low level familiarisation:

- ☐ Actions prior to descending
- ☐ Visual impressions and height control at low altitudes
- ☐ Effects of wind, speed, and inertia during turns
- ☐ Effects of wind and turbulence

Low level operation:

- ☐ Weather considerations
- ☐ Avoidance of precipitation
- ☐ Obstacle considerations

Effects of precipitation:

- ☐ As applicable to type

Joining circuit in poor weather, and bad-weather circuit

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Standard required at end of phase 5

Ability to choose a suitable safe area, and to set up a good approach to land following any unexpected power loss simulation.
Ability to choose a suitable safe landing area, and to carry out a low pass to check suitability of surface prior to a simulated precautionary landing.
Ability to fly safely at minimum operational level, demonstrating a high degree of understanding of low-level turbulence and awareness of obstacles, together with ability to coordinate turns correctly with regard to wind direction.
Acute awareness of dangers and rules associated with low flying, and consideration for noise, animals, etc

****

PHASE 6

Ex 17a. First solo.

Aim: To carry out a safe and accurate solo circuit, approach, and landing.

Airmanship:

- ☐ Constant look out
- ☐ Faultless checks
- ☐ Ability to deal with all emergency drills

First solo, short briefing required:

- ☐ Pilot should not hesitate to overshoot if in any doubt
- ☐ Differences in handling and performance when flown solo
- ☐ Use of ballast

Ex 17b. Solo circuit, local area, general flying consolidation.

Aim: To practise and refine all the skills learned during the dual training , and to prepare for the General Skills Test.

Airmanship:

- ☐ Review and application of all different aspects of airmanship

General flying consolidation:

- ☐ Review and application of all different aspects of the general handling skills

Circuit consolidation:

- ☐ Review and application of all different aspects of the take-off, circuit, approach and landing

Local area consolidation:

- ☐ Airfield departure procedure
- ☐ Map reading and identification of local features
- ☐ Turning onto and maintaining heading by use of compass
- ☐ Circuit rejoining procedure

Ex 17c. Dual revision for GST.

Aim: To correct any errors or bad habits which may have developed during 17b and to check that no aspect of the training has been overlooked.

Review of:

- ☐ All aspects of required standards of airmanship, general flying skills, knowledge of and practical application of ground subjects/procedures etc prior to application for General Skills Test

****

Standard required at end of phase 6

All general flying skills and airmanship to be up to GST standard. Also an adequate knowledge of aviation law, general meteorology, local weather, and ability to predict if conditions will remain suitable for continued flight. Also reasonable standard of map reading ability.

****

MICROLIGHT NPPL COURSE FLIGHT TRAINING SYLLABUS

PHASE 7

Ex 18. Pilot navigation.

Aim: To fly accurately and safely in VMC and under VFR, a predetermined route, without infringing the rules governing regulated airspace.

Airmanship:

- ☐ Pre-flight planning
- ☐ Planned cockpit management
- ☐ Adequate security of loose items

Flight planning:

- ☐ NOTAMs
- ☐ Weather forecast and actual(s) for planned route
- ☐ Map selection and preparation
- ☐ Choice of route
- ☐ Tie-down equipment

Calculations:

- ☐ Magnetic heading and times on route
- ☐ Fuel consumption
- ☐ Weight, balance and performance

Airfield procedure on departure:

- ☐ Organisation of cockpit
- ☐ Altimeter setting
- ☐ Setting of heading
- ☐ Setting of time and noting of ETAs

En-Route:

- ☐ Maintenance of altitudes and headings
- ☐ Revisions to ETA and heading
- ☐ Minimum weather conditions for flight to continue at any point
- ☐ 'In-flight' decisions
- ☐ Navigation at minimum level
- ☐ Uncertain of position procedure
- ☐ Lost procedure

Arrival at Destination procedure:

- ☐ Altimeter setting (QNH to airfield QFE)
- ☐ Airfield circuit and circuit joining procedure

Parking procedure

Security of aircraft:

Note:

A minimum total of 5 hours navigation flying training must be completed within the period of 9 months immediately prior to licence application or an application to remove operational limitations from an existing licence.

The required navigation flying training includes a minimum of 3 hours of solo navigation flying training to be completed within the 9 month period.

The navigation flight training must include two solo qualifying cross-country flights. Each solo qualifying cross country flight must have a:

- ☐ minimum total flight distance of 40 nautical miles

- ☐ a landing at another site which is at least 15 nautical miles, measured in a straight line, from the take-off site at which the flight began

The two solo qualifying cross-country flights must be flown over different routes and to different sites.

The navigation exercises would typically be spread over the following sessions, although it is not mandatory for any dual tuition for this part of the syllabus:

1) Dual cross country. (inc away landing)
2) Dual cross country. (inc navigation at minimum level, and lost procedure)
3) Solo cross country. (1st qualifying cross country)
4) Solo cross country. (2nd qualifying cross country)

****

Standard required at end of phase 7

Good navigational ability. Good ability to predict weather. High standard of airmanship.

****

SUMMARY OF THE SYLLABUS FOR THE MICROLIGHT NPPL COURSE GROUND-SCHOOL TRAINING

Principles of Flight

Aviation Law

Aviation Navigation

Aviation Meteorology

Airframes and Engines

Aircraft Instruments

Fire, First Aid, and Safety Equipment

Human Performance Limitations

MICROLIGHT NPPL COURSE GROUND-SCHOOL TRAINING SYLLABUS

PRINCIPLES OF FLIGHT

PHYSICS AND MECHANICS

- ☐ Speed, Velocity, Force
- ☐ Pressure - Bernoulli's Principle
- ☐ Motion of a body along a curved path

AEROFOILS, LIFT AND DRAG

- ☐ Air Resistance and Air Density
- ☐ Aerofoil shapes
- ☐ Lift and Drag - Angle of Attack and Airspeed
- ☐ Distribution of lift, Centre of pressure
- ☐ Drag - Induced, Parasite - Form, Skin, Interference
- ☐ Lift/Drag Ratio and Aspect Ratio

FLYING CONTROLS

- ☐ The Three Axes - Vertical, Lateral, Longitudinal Yaw, Pitch, Roll
- ☐ Operation and Function of Elevators, Ailerons, Rudder
- ☐ Principles and Purpose of Mass, and Aerodynamic Balance
- ☐ Operation and Function of Trimming Controls
- ☐ Operation and Function of Flaps
- ☐ Operation and Function of Spoilers, Spoilerons, Tip Rudders
- ☐ Principles and Function of Canard configuration
- ☐ Principles and operation weightshift control systems
- ☐ Operation and function of billow shift

EQUILIBRIUM

- ☐ The Four Forces - Lift, Weight, Thrust, Drag
- ☐ Moments and Couples
- ☐ The Balance of the Four Forces – Straight, Turning, Level, Climbing, Descending

STABILITY

- ☐ Positive, Neutral, Negative
- ☐ Lateral and Directional Stability 3Axis/Weightshift
- ☐ Longitudinal Stability 3Axis/Weightshift
- ☐ Relationship of C of G to Control in Pitch 3Axis/Weightshift
- ☐ Luff Lines on Weightshift aircraft
- ☐ Washout

THE STALL

- ☐ Airflow Separation
- ☐ Stalling Angle - Relationship to Airspeed
- ☐ Wing Loading
- ☐ Wing Loading increase with bank angle increase
- ☐ High Speed Stall

THE SPIN

- ☐ Causes of a spin
- ☐ Autorotation
- ☐ Effect of the C of G on spinning characteristics

TURNING FLIGHT

- ☐ The Forces in the Turn

LOAD FACTOR AND MANOEUVRES

- ☐ Definition of Load Factor - VN envelope
- ☐ Effect on Stalling Speed
- ☐ In-Flight Precautions

AIRCRAFT PERFORMANCE

- ☐ Power Curves
- ☐ Effect of Temperature and Density
- ☐ Range and Endurance
- ☐ Climbing Performance
- ☐ Rate of Climb
- ☐ Angle of Climb
- ☐ Take-off and Landing Performance
- ☐ Take-off Run Available
- ☐ Take-off Distance Available
- ☐ Landing Distance Available

THE TAKE-OFF AND INITIAL CLIMB – Performance Effect of:

- ☐ Wind
- ☐ Wind Gradient
- ☐ Wind Shear
- ☐ Weight
- ☐ Pressure, Altitude, Temperature and Density
- ☐ Ground Surface and Gradient
- ☐ Use of Flaps

THE APPROACH AND LANDING – Performance Effect of:

- ☐ Wind
- ☐ Wind Gradient
- ☐ Wind Shear
- ☐ Use of Flaps
- ☐ Ground Effect

WEIGHT AND BALANCE

- ☐ Limitations on Aircraft Weight
- ☐ Limitations in Relation to Aircraft Balance
- ☐ Weight and Centre of Gravity Calculations

THE PROPELLER

- ☐ Construction and Shape
- ☐ Maintenance and checks
- ☐ Balancing

AVIATION LAW

THE AIR NAVIGATION ORDER

- ☐ Classification of Aircraft

AIRCRAFT DOCUMENTATION

- ☐ Certificate of Registration
- ☐ Permit to Fly/Exemption Certificate
- ☐ Noise Certificate
- ☐ Flight Manual/Maintenance Schedules/Pilot's Operating Handbook
- ☐ Airframe and Engine Logbook and Pilot's responsibility to maintain and Record: Aircraft hours, inspections, defects, repairs, maintenance, and modifications(mandatory and otherwise)

PERMITS TO FLY

- ☐ BMAA 'Guide to Airworthiness' Document
- ☐ Non-expiring Permit to Fly and Certificate of Validity

- ☐ Conditions applying to Permit to Fly
- ☐ Failure to Comply with the Requirements or Conditions of the Permit to Fly or Exemption Certificate
- ☐ Application of Flight/Owner's Manual and Pilot's Operating Handbooks to the Permit to Fly
- ☐ Requirements for Maintenance and Inspections
- ☐ Overhaul, Repair, Replacement and Modifications to Aircraft or Equipment

AIRCRAFT EQUIPMENT

- ☐ ANO As detailed in applicable Schedule
- ☐ Equipment Required in Relation to the Circumstances of Flight

AIRCRAFT RADIO EQUIPMENT

- ☐ ANO As detailed in applicable Schedule
- ☐ Certificate of Approval of Aircraft Radio Installation
- ☐ Flight Radio Operators Licence

AIRCRAFT WEIGHT SCHEDULE

- ☐ Legal Requirements in Relation to the Permit to Fly

GRANT AND RENEWAL OF LICENCES TO MEMBERS OF FLIGHT CREW

- ☐ Conditions of issue

PRIVILEGES OF THE NATIONAL PRIVATE PILOT'S LICENCE

- ☐ Student Pilot Privileges
- ☐ Medical Certification
- ☐ Ground Examinations and Flight Test
- ☐ Medical Certificate - Renewal
- ☐ Private Pilot Privileges ('With and Without Operational Limitations)
- ☐ Minimum Weather Provisions

RATINGS - CONDITIONS OF ISSUE

- ☐ Privileges of the Aircraft Rating
- ☐ Additional Ratings

LICENCES AND RATINGS – RENEWAL

- ☐ Certificate of Revalidation achieved by Test or Experience
- ☐ Period of Validity
- ☐ Flying Hour Requirements

PERSONAL FLYING LOG BOOK

- ☐ Requirements to Maintain
- ☐ Personal Details

- ☐ Particulars of Flight
- ☐ Recording of Dual, Solo, Cross Country Flight Times
- ☐ Recording of Flight Tests
- ☐ Instructor's Endorsements of Flight Times

INSTRUCTION IN FLYING

- ☐ Definition of Flying Instruction
- ☐ Requirement for Flying Instruction to be given

PRE-FLIGHT ACTION BY COMMANDER OF AIRCRAFT

DROPPING OF PERSONS OR ARTICLES

CARRIAGE OF MUNITIONS

CARRIAGE OF DANGEROUS GOODS

ENDANGERING SAFETY OF AIRCRAFT

ENDANGERING SAFETY OF PERSONS OR PROPERTY

- ☐ By intent
- ☐ By Neglect

DRUNKENNESS IN AIRCRAFT

- ☐ Application to Passengers
- ☐ Application to Flight Crew. Legal maximum alcohol levels

SMOKING IN AIRCRAFT

- ☐ Notices in Aircraft

AUTHORITY OF COMMANDER OF AIRCRAFT

- ☐ Legal requirements to Obey all Lawful Commands

EXHIBITIONS OF FLYING

- ☐ Public Displays
- ☐ Private Events

DOCUMENTS TO BE CARRIED

- ☐ On Domestic Flights
- ☐ On International Flights

PRODUCTION OF DOCUMENTS AND RECORDS

- ☐ Requirements of Commander
- ☐ Requirements of Operator

- ☐ Requirements of Flight Crew
- ☐ Personal Flying Log Books

REVOCATION, SUSPENSION OR VARIATION OF CERTIFICATES, LICENCES, OR OTHER DOCUMENTS

- ☐ Whilst Pending Enquiry or After Enquiry
- ☐ Surrender of Documents
- ☐ Invalidation of Documents Due to Breach of Conditions

OFFENCES IN RELATION TO DOCUMENTS AND RECORDS

- ☐ Unauthorised use of Documents
- ☐ Alteration, Mutilation, or Destruction of Documents or Records
- ☐ Entries in Log Books or Records
- ☐ Incorrect Entries - Wilfully or Negligently
- ☐ Unauthorised Issue of Certificates

AERODROMES - INSTRUCTION IN FLYING

- ☐ The Recommendations for Basic minima as proposed by the BMAA
- ☐ Permission and Purpose of Use

POWER TO PREVENT AIRCRAFT FLYING

AIR TRAFFIC RULES AND SERVICES

DIVISION OF AIRSPACE IN THE UK

- ☐ Controlled Airspace
- ☐ Control Zones
- ☐ Control Areas
- ☐ Terminal Control Areas
- ☐ Airways
- ☐ Advisory Airspace
- ☐ Military Aerodrome Traffic Zones
- ☐ Civil Aerodrome Traffic Zones

CLASSIFICATION OF AIRSPACE

- ☐ The seven classes of airspace

VMC, IMC AND NOTIFICATION

- ☐ Conditions for VFR Flight (VMC)
- ☐ Conditions for IFR Flight (IMC)
- ☐ Quadrantal Rule
- ☐ Semi-Circular Rule
- ☐ Special VFR Flight

TYPES OF AIR TRAFFIC SERVICE UNITS

- ☐ NOTAMs
- ☐ The UK Air Pilot
- ☐ Air Traffic Centres
- ☐ Zone Control Units
- ☐ Aerodrome Control Units
- ☐ Radar Facilities

ALTIMETER SETTING PROCEDURES

- ☐ Terrain Clearance
- ☐ Flight Separation
- ☐ Flight Levels
- ☐ Transition Level
- ☐ Transition Layer
- ☐ Transition Altitude

FLIGHT AT AERODROMES

- ☐ Aerodrome Traffic Zone
- ☐ Lights and Pyrotechnic Signals
- ☐ Ground Signals Used at Civil Aerodromes
- ☐ Marshalling Signals

FLIGHT PLANS

FLIGHT INFORMATION REGIONS AND SERVICES

FLIGHT IN CONTROL ZONES, CONTROL AREAS AND TERMINAL CONTROL AREAS

FLIGHT ON AIRWAYS
FLIGHT ON ADVISORY ROUTES/SERVICE AREAS

AIRPROX REPORTING PROCEDURES

AIRSPACE RESTRICTIONS AND HAZARDS

- ☐ Danger Areas
- ☐ Prohibited and Restricted Areas
- ☐ Military Flight Training Areas
- ☐ Bird Sanctuaries
- ☐ High Intensity Radio Transmission Areas
- ☐ Additional Hazards to Aircraft in Flight
- ☐ Gliding Sites/Hang Gliding Sites
- ☐ Free Fall Parachute Areas
- ☐ Military Air Exercises
- ☐ Flying Displays, Air Races, Etc
- ☐ Navigational Obstructions

ROYAL FLIGHTS

AERODROMES AIS INFORMATION

- ☐ Civil Aerodromes
- ☐ Military Aerodromes
- ☐ Aerodrome Ground Lights
- ☐ Identification Beacons
- ☐ Aerodrome Beacons
- ☐ Times of Operation

METEOROLOGY

- ☐ Source of Information
- ☐ Requests for Route Forecasts

FACILITATION - CUSTOMS AND PUBLIC HEALTH

- ☐ Arrival, Departure, and Transit of Civil Aircraft on International Flights
- ☐ Customs Aerodromes
- ☐ Private Flights - Documentary Requirements
- ☐ Customs Requirements
- ☐ Public Health Requirements

SEARCH AND RESCUE

- ☐ Responsibility and Organisation
- ☐ Aircraft not Equipped with Radio
- ☐ Visual Distress and Urgency Signals
- ☐ Procedures and Signals Employed by Rescue Aircraft
- ☐ Search and Rescue Regions and Facilities

WARNING SIGNALS TO AIRCRAFT IN FLIGHT

EXTRACTS FROM THE RULES OF THE AIR TRAFFIC CONTROL REGULATIONS

- ☐ Interpretation
- ☐ Application of Rules to Aircraft
- ☐ Reporting Hazardous Conditions
- ☐ Low Flying
- ☐ Simulated Instrument Flight
- ☐ Lights or Other Signals to be shown or made by Aircraft
- ☐ Display of Lights by Aircraft
- ☐ Failure of Navigation Lights

GENERAL FLIGHT RULES

- ☐ Weather Reports and Forecasts
- ☐ Rules for Avoiding Aerial Collisions
- ☐ Aerobatic Manoeuvres
- ☐ Right Hand Traffic Rule

- ☐ Notification of Arrival
- ☐ Flight in Notified Airspace
- ☐ Choice of VFR or IFR

AERODROME TRAFFIC RULES

- ☐ Application
- ☐ Visual Signals
- ☐ Access to and Movement on the Manoeuvring Area
- ☐ Right of Way on the Ground
- ☐ Dropping of Tow Ropes
- ☐ Aerodromes not having ATC Units
- ☐ Special Rules for Certain Aerodromes
- ☐ Wake Turbulence Separation

FLIGHT SAFETY AND ACCIDENT/INCIDENT REPORTING

Extracts from:

THE CIVIL AVIATION (INVESTIGATION OF AIR ACCIDENTS) REGULATIONS
THE CIVIL NAVIGATION (INVESTIGATION OF AIR ACCIDENTS INVOLVING CIVIL AND MILITARY OR INSTALLATIONS) REGULATIONS

- ☐ Authorities requiring immediate notification by telephone
- ☐ Confirmation in writing and use of correct written form only
- ☐ BMAA Safety and Accident Investigation Handbook
- ☐ Flight Safety Issued Quarterly by the General Aviation Safety Council (GASCo)
- ☐ AAIB Bulletins
- ☐ Pink Aeronautical Information Circulars

NAVIGATION

FORM OF THE EARTH

- ☐ Meridians of Longitude
- ☐ Parallels of Latitude
- ☐ Rhumb Lines

MAGNETIC VARIATION

COMPASS DEVIATION

PRINCIPLES OF NAVIGATION

- ☐ IAS, Wind, Heading, Groundspeed
- ☐ The Triangle of Velocities
- ☐ Flight computers

MAPS AND CHARTS

- ☐ Practical Use of 1:500,000 and 1:250,000 Series
- ☐ Importance of using Current Charts
- ☐ Chart Scale
- ☐ Measurement of Distance and Heights
- ☐ Units of Distance
- ☐ Units of Height
- ☐ Conversion of Units (Distance and Height)
- ☐ Measurement of Angles, Tracks and Bearings
- ☐ Relationship to True, Magnetic and Compass North

MAP REFERENCE INFORMATION

- ☐ Latitude and Longitude
- ☐ Isogonals
- ☐ Topography
- ☐ Relief
- ☐ Hydrographical Features
- ☐ Cultural Features
- ☐ Aeronautical Symbols
- ☐ Aeronautical Information

MAP READING

- ☐ Map Analysis
- ☐ Permanent Features
- ☐ Relief
- ☐ Line Features
- ☐ Spot Features
- ☐ Unique or Special Features
- ☐ Features Subject to Change
- ☐ Water
- ☐ Other
- ☐ Effects of Seasons

PREPARATION

- ☐ Checkpoint Features and Selection
- ☐ Folding the Map for use

METHODS OF MAP READING

- ☐ Map Orientation
- ☐ Anticipation of Checkpoints
- ☐ With Continuous Visual Contact
- ☐ With Restricted Visual Contact
- ☐ When Uncertain of Position

FLIGHT PLANNING

- ☐ Selection of Charts

- ☐ Plotting the Route
- ☐ Selection of Altitude/s and Safety Altitude
- ☐ Use of the Chart of UK Airspace Restrictions
- ☐ Danger Areas
- ☐ Prohibited/Restricted Areas
- ☐ Military Flight Training Areas
- ☐ Bird Sanctuaries
- ☐ High Intensity Radio Transmission Areas
- ☐ Additional Hazards to Aircraft in Flight
- ☐ NOTAMs and Aeronautical Information Bulletins
- ☐ Civil Aeronautical information circulars
- ☐ Local Time / Greenwich Mean Time / UTC

WEATHER FORECASTS AND REPORTS

- ☐ Minimum Weather Conditions Acceptable to Safety
- ☐ General Aviation Visual Flight Forecast Service
- ☐ Aerodrome Forecasts and Reports
- ☐ Local Telephone General Weather Forecast
- ☐ Local Radio/TV General Weather Forecast

PRACTICAL NAVIGATION

- ☐ Compilation of the Flight Log
- ☐ Measurement of Tracks
- ☐ Determining Safety Altitude
- ☐ Calculating Heading, True and Magnetic, Groundspeed, Distance, Time, Fuel Consumption, Fuel Required
- ☐ Departure Procedures
- ☐ Booking Out
- ☐ Estimated Time of Arrival
- ☐ Setting heading Procedures
- ☐ Altimeter Setting Procedures
- ☐ Maintenance of Altitude and Heading
- ☐ Establishing Position
- ☐ Revisions to Heading
- ☐ The “1:60” and “Closing Angle” Methods of Heading Correction
- ☐ The use of Drift Lines
- ☐ En Route Checks
- ☐ Uncertainty of Position Procedure
- ☐ Lost Procedures
- ☐ Arrival Procedures
- ☐ Altimeter Setting Procedures
- ☐ Booking in

AVIATION METEOROLOGY

THE ATMOSPHERE

- ☐ Composition and Structure
- ☐ Air density

PRESSURE

- ☐ Air has weight
- ☐ Effect of altitude
- ☐ Effect on density
- ☐ Measurement
- ☐ Barometers. Aneroid and Mercurial
- ☐ Mean Seal Level (MSL)-Conversion for height
- ☐ Isobars
- ☐ Pressure systems - Depression - Trough - Col - Anticyclone - Ridge

THE ALTIMETER

- ☐ Principle
- ☐ Pressure settings (QNH, QFE, Regional PS, Standard)

WIND

- ☐ Horizontal motion of the atmosphere
- ☐ Effect of Earth's rotation
- ☐ Relation of wind to isobars. Surface friction. Geostrophic
- ☐ Local winds. Sea breeze, off shore,
- ☐ Thermal winds
- ☐ Katabatic/Anabatic
- ☐ Effect of terrain. Surface geography, Surface objects, Rotor
- ☐ Standing waves
- ☐ Wind gradient
- ☐ Wind shear

TEMPERATURE

- ☐ Source of Earth's heat
- ☐ Effect on density
- ☐ Adiabatic cooling/heating
- ☐ Lapse rates.
- ☐ Environmental ELR
- ☐ Adiabatic - dry and wet (saturated)
- ☐ Effect of height on saturated adiabatic lapse rate

HUMIDITY

- ☐ Water vapour
- ☐ Moisture content
- ☐ Relative Humidity
- ☐ Effect of temperature
- ☐ Dew point temperature
- ☐ Effect on density

AIR MASSES

- ☐ Source and types
- ☐ Transformation

- ☐ Fronts
- ☐ Warm
- ☐ Cold
- ☐ Occlusion

CLOUDS

- ☐ Classification of Clouds. High/Medium/Low
- ☐ Types of Clouds. Stratiform, Cumiliform
- ☐ Names of Clouds

FORMATION OF CLOUD

- ☐ Air cooling to Dew Point
- ☐ Mixing - vertical motion of atmosphere
- ☐ Convection - stability and instability
- ☐ Orographic
- ☐ Frontal

PRECIPITATION

- ☐ Rain/drizzle/hail/sleet/snow

DEPRESSIONS

- ☐ Origin
- ☐ Development
- ☐ Frontal depression

VISIBILITY

- ☐ Measurement
- ☐ Haze
- ☐ Mist
- ☐ Fog - Radiation/Advection

ICE ACCRETION ON AIRCRAFT

- ☐ Conditions required for ice formation
- ☐ Types of airframe icing
- ☐ Hoar frost
- ☐ Rime ice
- ☐ Clear ice
- ☐ Effects of icing on aircraft performance
- ☐ Carburettor icing

EFFECTS OF WEATHER ON FLIGHT

- ☐ Effect on an altimeter en route in proximity to a depression
- ☐ Effect of turbulence - low level - under cumulus
- ☐ Hazards of flight through depressions and fronts

- ☐ Hazards of flight in reduced visibility - haze - precipitation
- ☐ Effect on visibility related to the sun's position ahead or behind
- ☐ Flight in proximity of large Cu and Cb Cloud - line squalls
- ☐ Effect on surface wind direction of large Cu and Cb cloud
- ☐ Potential hazard of a snow/ice coating on a parked aeroplane
- ☐ Potential hazard of a clear evening sky in autumn/winter - fog, frost

AIRFRAMES AND ENGINES

AIRCRAFT STRUCTURE

- ☐ Airframe
- ☐ Wing
- ☐ The Controls
- ☐ The Trimming System
- ☐ Tuning
- ☐ Aircraft Tyres. Wear, Bulges, Cuts, Scores
- ☐ Aircraft Seats
- ☐ Baggage
- ☐ Stowage Position
- ☐ Maximum Weights allowed

ENGINE

- ☐ Principles of two stroke cycle
- ☐ Principles of four stroke cycle

ENGINE IGNITION SYSTEM

- ☐ Principles
- ☐ The Ignition Switch/es
- ☐ Use of Correct Spark Plugs
- ☐ Spark Gap
- ☐ Replacement Intervals
- ☐ Spark Plug Security

CARBURETTORS

- ☐ Principles
- ☐ Setting for the Correct Mixture
- ☐ Recognising the Wrong Mixture
- ☐

EXHAUST SYSTEMS

- ☐ Difference between Two-stroke and Four-stroke systems
- ☐ Checks for security, cracks, and internal integrity

SERVICING

- ☐ Intervals

OIL SYSTEM

- ☐ Correct mixing of Two-stroke Oil/Petrol
- ☐ Four stroke oil system

FUEL SYSTEM

- ☐ Fuel Pump
- ☐ Fuel Filters
- ☐ Fuel Grade
- ☐ Water in Fuel

ELECTRICAL SYSTEM

- ☐ Generators
- ☐ Batteries

PROPELLER

- ☐ Defects
- ☐ Balancing

REDUCTION DRIVE

- ☐ Belt Tension
- ☐ Alignment
- ☐ Defects
- ☐ Maintenance procedures

AIRCRAFT INSTRUMENTS

AIRSPEED INDICATOR

- ☐ Position Errors

ALTIMETER

MAGNETIC COMPASS

- ☐ Precautions when carrying Ferrous Objects
- ☐ Turning, acceleration, Deceleration errors

ENGINE INSTRUMENTS

- ☐ Temperature Gauges - CHT - EGT - Water
- ☐ RPM Counter

FIRE, FIRST AID, AND SAFETY EQUIPMENT

FIRE, DANGERS AND PRECAUTIONS

- ☐ Fire Extinguishers
- ☐ Fire in Flight
- ☐ Fire on the Ground
- ☐ Fuel Storage, Fuel Mixing, Refuelling
- ☐ Smoking

FIRST AID

- ☐ Procedures following an accident
- ☐ Fractured or Broken Limbs
- ☐ Severe Bleeding
- ☐ Head Injuries
- ☐ Severe Shock
- ☐ Burns
- ☐ First Aid Kits - Stowage

HUMAN PERFORMANCE LIMITATIONS

INTRODUCTION

- ☐ Reasons for Knowledge of HPL

OXYGEN

- ☐ Relation - to the atmosphere, to altitude
- ☐ Effects of reduced intake

HYPOXIA

- ☐ Location
- ☐ Timing
- ☐ Effects and acceleration of same

HYPERVENTILATION

- ☐ Causes and effects
- ☐ Avoidance

BAROTRAUMA

- ☐ Causes and effects
- ☐ Avoidance

COMMON AILMENTS

- ☐ Effects
- ☐ Medication

DECOMPRESSION

- ☐ Underwater effects
- ☐ Relationship to flying

AIR SICKNESS

- ☐ Causes
- ☐ Medication
- ☐ Environment

HEARING

- ☐ Noise limits
- ☐ Effects
- ☐ Precautions

SIGHT

- ☐ Correction of defects

TOXIC HAZARDS

- ☐ Sources
- ☐ Effects
- ☐ Smoking

BLOOD PRESSURE

- ☐ Control

ALCOHOL/DRUGS

- ☐ Problems
- ☐ Effects
- ☐ Control
- ☐ Legal Limits

KNOWLEDGE AND THE SENSES

- ☐ Knowledge
- ☐ Perception
- ☐ Action
- ☐ Environment

DISORIENTATION

- ☐ Causes
- ☐ Effect
- ☐ Result

AVOIDING THE AIRPROX

- ☐ Assessment
- ☐ Relative speeds
- ☐ 'Look-out'
- ☐ Actions
- ☐ Problems

STRESS

- ☐ Forms
- ☐ The individual
- ☐ Outside influences

MANAGEMENT OF STRESS

- ☐ Danger of drugs
- ☐ Mutual discussion
- ☐ Experience

SOCIAL PSYCHOLOGY

- ☐ The Ego factor
- ☐ Potential reactions
- ☐ Control

HYPOTHERMIA

- ☐ Causes
- ☐ Recognition
- ☐ Preparation for eventuality