

## CPL Syllabus

### PELR 7.4 CPL

#### AERONAUTICAL KNOWLEDGE

The applicant is required to exhibit a comprehensive understanding of the subject matter that aligns with the privileges associated with holding a Commercial Pilot License, as well as the specific category of aircraft to be listed on the license. This knowledge must cover, at least, the following key subject areas:

#### **A) Air Law**

- Civil Aviation Authority of Nepal Regulations and Technical Standards.
- Pilot licensing & Medical certification.
- Commercial aviation and Operating Flight Rules.
- Conveyance of dangerous goods.
- Airspace and Air traffic services.
- CAAN AIP
  1. Enroute
    - General
    - Classification of Airspace
    - Altimeter Setting Procedures
  2. Aerodromes

#### **B) Aircraft General Knowledge**

- Principles of operation and functioning of engines, systems and instruments.  
systems including; Landing gear,  
Hydraulics, De-ice and anti-ice systems,  
Air driven system & Fuel system
- SUBSONIC AERODYNAMICS
  1. Laws and definitions
  2. Airspeeds
  3. Lift & Drag
  4. Thrust
  5. Ground effects
  6. Flying Controls
  7. Lift augmentation
  8. Stalling
  9. Forces acting on aeroplane
  10. Stability

## **C) Flight Performance, Planning and Loading**

- **AIRSPEED TERMINOLOGY AND SYMBOLS**  
( VA, VNO, VNE, VX, VY, VS, VSO, VFO, VFE, VLO, VLE, VMO, VS1g, VSR, VSR0, VSR1)
- **METEOROLOGICAL TERMINOLOGY**  
( ISA, OAT, IOAT, TAT, SAT, QNH, QFE, QNE)
- **AERODROME TERMINOLOGY**  
( TORA, TODA, TODR, LDA , LDR, TORR)
- **Mass & Balance**
- **Effects of loading and mass distribution on aircraft handling, flight characteristics and Performance**
- **Use and practical application of Performance data**
- **Pre-flight and Enroute flight planning**

## **D) Human Performance**

- **Human factors in aviation**
- **Flight Safety Concepts**
- **Basic of flight physiology**
- **Human Information Processing**
- **Human error and Decision making**
- **Incident & accident statistics**

## **E) Meteorology**

- **The Atmosphere Composition**
- **Wind:** Definition and measurement,  
Primary cause of wind, General Circulation, Turbulence, Variation in winds with height, Local Winds, Jet Streams, Standing waves
- **Thermodynamics:** Humidity, Change of State of aggregation, Adiabatic process,
- **Clouds and fog:** Cloud formation and description, Fog, Mist, Haze.

- **Precipitation:**

Development of precipitation, Types of precipitation

- **Air Masses and Fronts:**

Type of Air masses, Fronts

- **Pressure Systems:**

Location of principle pressure areas, Anticyclones, Non-Frontal Depressions  
Tropical Revolving Storm.

- **Flight Hazards:**

Icing, Turbulence, Thunderstorms, Low and high level inversion, Hazards in mountainous area  
Visibility reducing phenomena

- **Meteorological Services, report and forecasts**

- **Climates & Basic meteorological phenomena in Nepal**

## **F) Navigation**

- Air navigation, including the use of aeronautical charts, instruments and navigation aids
- An understanding of the principles and characteristics of appropriate navigation systems
- Principles & Operation of airborne equipment. ( ADF, VOR, DME, ILS )

## **G) Operational Procedures**

- Use of aeronautical documentation such as AIP, NOTAM
- Minimum Equipment List (MEL)/ (MMEL)
- de-icing / anti-icing
- Bird strike risk and avoidance
- Transportation of dangerous goods by air
- Decompression of pressurized system
- Windshear and microburst
- Wake turbulence
- Emergency and precautionary landings
- Hydroplaning & Contaminated runway

## **H) Principles of Flight**

- Basic Laws, Definitions, Terminology
- Changes in AOA
- Lift and drag
- Manoeuvres
- Performance considerations
- The ground effect
- The boundary layer
- Propellers
- Flight Mechanics
- Control & Stability
- limitations

### **/) Radiotelephony**

- Communication procedures and phraseology as applied to VFR operations
- Action required in case of communication failure
- Air traffic services abbreviations
- Distress and urgency procedures
- Transmission technique: Standard words and phraseology