

## ATPL Syllabus

### PELR 7.20 ATPL

#### AERONAUTICAL KNOWLEDGE

The applicant is required to exhibit a comprehensive understanding of the subjects matter that aligns with the privileges associated with holding an Airline Transport 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 listed below. In addition, the applicant for an Airline Transport Pilot License applicable to the aeroplane or powered-lift category, shall have met the knowledge requirements for the Instrument Rating of this PELR.

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

- Civil Aviation Authority of Nepal Regulations and Technical Standards.
- Rules of the air; appropriate air traffic services practices and procedures.
- Rules and regulations relevant to the holder of an Airline Transport Pilot License.
- Operating procedures and limitations of the relevant category of aircraft.
- Commercial aviation and Operating Flight Rules.
- Conveyance of dangerous goods.
- Airspace and Air traffic services.
- CAAN AIP
  - 1. Enroute
    - General
    - Classification of Airspace
    - Primary & SSR
    - Altimeter Setting Procedures
  - 2. Aerodromes

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

- Principles of operation and functioning of engines, systems and instruments. systems including; Landing gear, Power plant, Navigation system, Hydraulics, De-ice and anti-ice systems, Air driven system & Fuel system.
- Operating limitations of the relevant category of aircraft and engines; relevant operational information from the flight manual or other appropriate document
- use and serviceability checks of equipment and systems of appropriate aircraft
- 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**
- **Effects of atmospheric conditions on aircraft performance in accordance to the relevant Manual**

### **D) Human Performance**

- **Human factors in aviation**
- **Flight Safety Concepts**
- **Basic of flight physiology**
- **SHELL Model**
- **Human Information Processing**
- **Human error and Decision making**

- Crew resource management
- Incident & accident statistics
- Advanced Cockpit Automation

## **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**
- **ATS Meteorological Services 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, RNAV )

### **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

### **I) Radiotelephony**

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