

## SECTION 1.7 NAVIGATION (NV)

### Unit 1.7.1 PNVC: PPL navigation – all aircraft categories

#### 1. Reserved

#### 2. General navigation

##### 2.1 Form of the earth

2.1.1 Describe:

- (a) the shape and rotation of the earth;
- (b) latitude, longitude;
- (c) the difference between true and magnetic north;
- (d) how distance and direction are measured and applied to navigation;
- (e) magnetic variation and compass deviation;
- (f) the relationship between magnetic heading, relative heading and magnetic bearing.

##### 2.2 Time

- 2.2.1 Explain the terms UTC, local mean time, local (standard) time, local summer time.
- 2.2.2 Determine within +/- 5 min the beginning and end of civil twilight from AIP daylight and darkness graphs.
- 2.2.3 Complete conversions between LMT, UTC, local (standard) times, including local summer time.
- 2.2.4 List factors which may cause daylight to end earlier than the time extracted from AIP darkness graphs.

##### 2.3 Basics – Extract information from documents

- 2.3.1 On a WAC and AIP 'visual' charts (if applicable) which cover the local area of operation:
  - (a) identify, without reference to the chart legend:
    - (i) major features to assist in map reading, for example, roads, rivers, lakes;
    - (ii) obstacles and spot heights, including elevation or height above terrain;
    - (iii) CTA, PRDs, and aerodrome data on VTC/ERC (if applicable);
  - (b) decode other symbols with reference to the chart legend;
  - (c) assess the general height of the terrain from hypsometric tints and contours;
  - (d) estimate track and distance;
  - (e) demonstrate and explain the reason for chart orientation in flight.
- 2.3.2 On visual AIP charts identify airspace boundaries and symbols with reference to the chart legend.
- 2.3.3 Use ERSA to extract:
  - (a) runway data;
  - (b) data pertaining to prohibited, restricted and danger areas.

##### 2.4 Computation techniques

- 2.4.1 Use mental rules of thumb to estimate:
  - (a) time interval using estimated GS and distance, for example, 120 kt = 2 nm/min;
  - (b) endurance given fuel flow and fuel available (excluding reserve fuel).
- 2.4.2 Apply magnetic variation to obtain magnetic direction.
- 2.4.3 Carry out conversions between:
  - (a) feet/metres;
  - (b) nm/km;
  - (c) lbs/kg;