

**NPPL to PPL (A) Bridging Examinations**  
**030 Flight Performance and Planning & 060 Radio Navigation**  
**Learning Objectives**

| <b>Syllabus Reference</b> | <b>Syllabus details &amp; Associated Learning Objective</b>                  | <b>NPPL to PPL (A)</b> |
|---------------------------|------------------------------------------------------------------------------|------------------------|
| <b>030.00.00.00</b>       | <b>FLIGHT PERFORMANCE AND PLANNING</b>                                       |                        |
| 031.00.00.00              | <b>MASS AND BALANCE: AEROPLANES OR HELICOPTERS</b>                           |                        |
| 031.01.00.00              | <b>Purpose of mass and balance considerations</b>                            |                        |
| 031.01.01.00              | <b>Mass limitations</b>                                                      |                        |
| 031.01.01.01              | Importance in regard to structural limitations                               | x                      |
| 031.01.01.02              | Importance in regard to performance limitations                              | x                      |
| 031.01.02.00              | <b>CG limitations</b>                                                        |                        |
| 031.01.02.01              | Importance in regard to stability and controllability                        | x                      |
| 031.01.02.02              | Importance in regard to performance                                          | x                      |
| 031.02.00.00              | <b>Loading</b>                                                               |                        |
| 031.02.01.00              | <b>Terminology</b>                                                           |                        |
| 031.02.01.01              | Mass terms                                                                   | x                      |
| 031.02.01.02              | Load terms (including fuel terms)                                            | x                      |
| 031.02.02.00              | <b>Mass limits</b>                                                           |                        |
| 031.02.02.01              | Structural limitations                                                       | x                      |
| 031.02.02.02              | Performance limitations                                                      | x                      |
| 031.02.02.03              | Baggage compartment limitations                                              | x                      |
| 031.02.03.00              | <b>Mass calculations</b>                                                     |                        |
| 031.02.03.01              | Maximum masses for take-off and landing                                      | x                      |
| 031.02.03.02              | Use of standard masses for passengers, baggage and crew                      | x                      |
| 031.02.04.00              | <b>Fundamentals of CG calculations</b>                                       |                        |
| 031.02.04.01              | Definition of centre of gravity                                              | x                      |
| 031.02.04.02              | Conditions of equilibrium (balance of forces and balance of moments)         | x                      |
| 031.02.04.03              | Basic calculations of CG                                                     | x                      |
| 031.03.00.00              | <b>Mass and balance details of aircraft</b>                                  |                        |
| 031.03.01.00              | <b>Contents of mass and balance documentation</b>                            |                        |
| 031.03.01.01              | Datum and moment arm                                                         | x                      |
| 031.03.01.02              | CG position as distance from datum                                           | x                      |
| 031.03.02.00              | <b>Extraction of basic mass and balance data from aircraft documentation</b> |                        |
| 031.03.02.01              | BEM                                                                          | x                      |
| 031.03.02.02              | CG position or moment at BEM                                                 | x                      |
| 031.03.02.03              | Deviations from standard configuration                                       | x                      |
| 031.04.00.00              | <b>Determination of CG position</b>                                          |                        |
| 031.04.01.00              | <b>Methods</b>                                                               |                        |
| 031.04.01.01              | Arithmetic method                                                            | x                      |
| 031.04.01.02              | Graphic method                                                               | x                      |
| 031.04.02.00              | <b>Load and trim sheet</b>                                                   |                        |
| 031.04.02.01              | General considerations                                                       | x                      |
| 031.04.02.02              | Load sheet and CG envelope for light aeroplanes and for helicopters          | x                      |

| <b>Syllabus Reference</b> | <b>Syllabus details &amp; Associated Learning Objective</b>                     | <b>NPPL to PPL (A)</b> |
|---------------------------|---------------------------------------------------------------------------------|------------------------|
| 032.00.00.00              | <b>PERFORMANCE: AEROPLANES</b>                                                  |                        |
| 032.01.01.00              | <b>Introduction</b>                                                             |                        |
| 032.01.01.01              | Performance classes                                                             | x                      |
| 032.01.01.02              | Stages of flight                                                                | x                      |
| 032.01.01.03              | Effect of aeroplane mass, wind, altitude, runway slope and runway conditions    | x                      |
| 032.01.01.04              | Gradients                                                                       | x                      |
| 032.01.02.00              | <b>SE aeroplanes</b>                                                            |                        |
| 032.01.02.01              | Definitions of terms and speeds                                                 | x                      |
| 032.01.03.00              | <b>Take-off and landing performance</b>                                         |                        |
| 032.01.03.01              | Use of aeroplane flight manual data                                             | x                      |
| 032.01.04.00              | <b>Climb and cruise performance</b>                                             |                        |
| 032.01.04.01              | Use of aeroplane flight data                                                    | x                      |
| 032.01.04.02              | Effect of density altitude and aeroplane mass                                   | x                      |
| 032.01.04.03              | Endurance and the effects of the different recommended power or thrust settings | x                      |
| 032.01.04.04              | Still air range with various power or thrust settings                           | x                      |
| 033.00.00.00              | <b>FLIGHT PLANNING AND FLIGHT MONITORING</b>                                    |                        |
| 033.03.00.00              | <b>ICAO flight plan (ATS flight plan)</b>                                       |                        |
| 033.03.01.00              | <b>Individual flight plan</b>                                                   |                        |
| 033.03.01.01              | Format of flight plan                                                           | x                      |
| 033.03.01.02              | Completion of the flight plan                                                   | x                      |
| 033.03.01.03              | Submission of the flight plan                                                   | x                      |
| 033.04.00.00              | <b>Flight monitoring and in-flight replanning</b>                               |                        |
| 033.04.01.00              | <b>Flight monitoring</b>                                                        |                        |
| 033.04.01.01              | Monitoring of track and time                                                    | x                      |
| 033.04.01.02              | In-flight fuel management                                                       | x                      |
| 033.04.01.03              | In-flight re-planning in case of deviation from planned data                    | x                      |
| 061.07.00.00              | <b>RADIO NAVIGATION</b>                                                         |                        |
| 061.07.00.00              | <b>Basic radio propagation theory</b>                                           |                        |
| 061.07.01.00              | <b>Antennas</b>                                                                 |                        |
| 061.07.01.01              | Characteristics                                                                 | x                      |
| 061.07.02.00              | <b>Wave propagation</b>                                                         |                        |
| 061.07.02.01              | Propagation with the frequency bands                                            | x                      |
| 061.08.00.00              | <b>Radio aids</b>                                                               |                        |
| 061.08.01.00              | <b>Ground DF</b>                                                                |                        |
| 061.08.01.01              | Principles                                                                      | x                      |
| 061.08.01.02              | Presentation and interpretation                                                 | x                      |
| 061.08.01.03              | Coverage                                                                        | x                      |
| 061.08.01.04              | Range                                                                           | x                      |
| 061.08.01.05              | Errors and accuracy                                                             | x                      |
| 061.08.01.06              | Factors affecting range and accuracy                                            | x                      |

| <b>Syllabus Reference</b> | <b>Syllabus details &amp; Associated Learning Objective</b> | <b>NPPL to PPL (A)</b> |
|---------------------------|-------------------------------------------------------------|------------------------|
| 061.08.02.00              | <b>NDB/ADF</b>                                              |                        |
| 061.08.02.01              | Principles                                                  | x                      |
| 061.08.02.02              | Presentation and interpretation                             | x                      |
| 061.08.02.03              | Coverage                                                    | x                      |
| 061.08.02.04              | Range                                                       | x                      |
| 061.08.02.05              | Errors and accuracy                                         | x                      |
| 061.08.02.06              | Factors affecting range and accuracy                        | x                      |
| 061.08.03.00              | <b>VOR</b>                                                  |                        |
| 061.08.03.01              | Principles                                                  | x                      |
| 061.08.03.02              | Presentation and interpretation                             | x                      |
| 061.08.03.03              | Coverage                                                    | x                      |
| 061.08.03.04              | Range                                                       | x                      |
| 061.08.03.05              | Errors and accuracy                                         | x                      |
| 061.08.03.06              | Factors affecting range and accuracy                        | x                      |
| 061.08.04.00              | <b>DME</b>                                                  |                        |
| 061.08.04.01              | Principles                                                  | x                      |
| 061.08.04.02              | Presentation and interpretation                             | x                      |
| 061.08.04.03              | Coverage                                                    | x                      |
| 061.08.04.04              | Range                                                       | x                      |
| 061.08.04.05              | Errors and accuracy                                         | x                      |
| 061.08.04.06              | Factors affecting range and accuracy                        | x                      |
| 061.09.00.00              | <b>Radar</b>                                                |                        |
| 061.09.01.00              | <b>Ground radar</b>                                         |                        |
| 061.09.01.01              | Principles                                                  | x                      |
| 061.09.01.02              | Presentation and interpretation                             | x                      |
| 061.09.01.03              | Coverage                                                    | x                      |
| 061.09.01.04              | Range                                                       | x                      |
| 061.09.01.05              | Errors and accuracy                                         | x                      |
| 061.09.01.06              | Factors affecting range and accuracy                        | x                      |
| 061.09.02.00              | <b>Secondary surveillance radar and transponder</b>         |                        |
| 061.09.02.01              | Principles                                                  | x                      |
| 061.09.02.02              | Presentation and interpretation                             | x                      |
| 061.09.02.03              | Modes and codes                                             | x                      |
| 061.10.00.00              | <b>GNSS</b>                                                 |                        |
| 061.10.01.00              | <b>GPS, GLONASS OR GALILEO</b>                              |                        |
| 061.10.01.01              | Principles                                                  | x                      |
| 061.10.01.02              | Operation                                                   | x                      |
| 061.10.01.03              | Errors and accuracy                                         | x                      |
| 061.10.01.04              | Factors affecting accuracy                                  | x                      |