Title	**Demonstrate knowledge of aircraft construction and maintenance practices**		
Level	**3**	**Credits**	**14**

Purpose	This is an introductory, knowledge-based unit standard for people entering the aeronautical engineering industry, to a level that enables them to move into various areas of the industry and be trained at higher levels. People credited with this unit standard are able to demonstrate knowledge of: the principles of aircraft construction; principles of flight; aircraft systems; and standard aircraft maintenance practices.

Classification	Aeronautical Engineering > Aeronautical Engineering - Core

Available grade	Achieved

Guidance Information

None.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of the principles of aircraft construction.

Performance criteria

1.1 Construction of an aircraft is described in terms of its major components and construction principles.

1.2 Major airframe components are described in terms of their function on an aircraft in flight and on the ground.

Range fuselage, wings, horizontal stabiliser, vertical stabiliser, landing gear, rotor, flight controls, doors.

1.3 Aircraft construction materials are described in terms of their basic properties and reasons for use in aircraft.

Range ferrous metals, non-ferrous metals, composites.

Outcome 2

Demonstrate knowledge of the principles of flight.

Performance criteria

2.1 The principles of airflow and aerofoils are described in terms of their application to aircraft in flight.

Range subsonic, transonic.

2.2 The forces of lift, weight, drag and thrust acting on an aircraft in flight are described in terms of their application to rotary and fixed wing applications.

2.3 The principles of control and stability are described in terms of their application to a fixed winged aircraft in flight.

Range primary controls, secondary controls.

2.4 The principles of control are described in terms of their application to a rotary winged aircraft in flight.

Range primary controls.

Outcome 3

Demonstrate knowledge of aircraft systems.

Performance criteria

3.1 Propulsion systems are described in terms of their operating principles, major components and use on aircraft.

Range reciprocating, turbine.

3.2 Propeller systems are described in terms of their purpose and operating principles.

3.3 Mechanical systems are described in terms of their purpose and operating principles.

Range may include but is not limited to – air conditioning and pressurisation, hydraulic, fuel, pneumatic, oxygen, flight control, ice and rain protection, water and waste, landing gear, steering, doors, emergency escape and aircraft emergency flotation devices, fire detection and protection, auxiliary power units.

3.4 Avionic systems are described in terms of their purpose and operating principles.

Range instrument, electrical, radio, radar.

3.5 The interrelationship of systems is described in terms of their use during aircraft operation and control.

3.6 Common hazards and standard maintenance practices are described in terms of their application to aircraft system maintenance activities.

Outcome 4

Demonstrate knowledge of standard aircraft maintenance practices.

Performance criteria

4.1 The reasons for, and principles of, standard industry practices are described in terms of their application to basic aircraft maintenance activities.

Range may include but is not limited to – tool control, quality control, inspection procedures, bonding, foreign object damage prevention, disposal of parts and materials, identification symbols and markings, use of approved publications, certification of work, control of parts and materials, defect reporting, handling of electrostatic sensitive devices.

Planned review date	31 December 2027

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	22 September 1995	31 December 2016
Revision	2	7 August 1997	31 December 2016
Review	3	30 August 1999	31 December 2016
Revision	4	8 May 2001	31 December 2016
Review	5	20 April 2006	31 December 2016
Review	6	19 September 2013	31 December 2021
Review	7	26 March 2020	N/A
Rollover and Revision	8	26 April 2024	N/A

Consent and Moderation Requirements (CMR) reference	0028

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact Ringa Hora Services Workforce Development Council qualifications@ringahora.nz if you wish to suggest changes to the content of this unit standard.